WHAT IS CLAIMED IS:

1. An optical element comprising:

a plurality of different illumination regions, each of said plurality of different illumination regions having a different illumination property selected to reduce line width variations on a printed substrate,

whereby line width on the printed substrate is modified over portions of the printed substrate spatially corresponding to said plurality of different illumination regions.

2. An optical element as in claim 1 wherein: said plurality of different illumination regions are formed by a micro lens array.

3. An optical element as in claim 2 wherein:

the micro lens array comprises hexagonal close packed parabolic lenslets.

4. An optical element as in claim 2 wherein:

the micro lens array includes conical lenslets.

5. An optical element as in claim 2 wherein:

the micro lens array includes pyramidal lenslets.

6. An optical element as in claim 1 wherein:

said plurality of different illumination regions are formed by a diffractive optical element.

7. An optical element as in claim 1 wherein:

the illumination property comprises partial coherence or fill geometry.

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8. An optical element for use in a scanning photolithographic system comprising:

a plurality of illumination regions positioned longitudinally along the optical element, each of said plurality of different illumination regions having a different illumination property illuminating different portions of a reticle,

whereby line width of a printed substrate is modified over portions of the printed substrate spatially corresponding to said plurality of different illumination regions.

9. An optical element for use in a scanning photolithographic system as in claim 8 wherein:

each of said plurality of different illumination regions is formed by a diffractive optical element.

10. An optical element for use in a photolithographic system and positioned between an illumination source and a reticle having horizontal and vertical line widths to be projected onto a photosensitive substrate resulting in printed horizontal and vertical line widths comprising:

a plurality of regions located at predetermined spatial locations selected for locally affecting the printed line widths; and

means, placed in each of said plurality of regions, for modifying an illumination property of the illumination source thereby affecting the printed line widths on the photosensitive substrate at the predetermined spatial locations,

whereby variations in width of the printed line widths at the predetermined spatial locations are reduced.

11. An optical element for use in a photolithographic system as in claim 10 wherein:

the illumination property comprises partial coherence or fill geometry.

12. An optical element for use in a photolithographic system as in claim 10 wherein:

the illumination property is a cone of radiation emerging from one side of said optical element.

13. An optical element for use in a photolithographic system as in claim 10 wherein:

the illumination property affects the printed horizontal line width.

14. An optical element for use in a photolithographic system as in claim 10 wherein:

the illumination property affects the printed vertical line width.

15. An optical element for use in a photolithographic system as in claim 10 wherein:

said means is a diffractive optic.

16. An optical element for use in a photolithographic system as in claim 10 wherein:

said means is a refractive optic.

17. A photolithography system used in projecting an image of a reticle onto a photosensitive substrate comprising:

an illumination source;

an optical element, said optical element having a plurality of different illumination regions spatially positioned thereon, each of the plurality of different illumination regions having an optical arrangement producing a different illumination property selected to modify line width of a printed substrate; and

projection optics, said projection optics projecting electromagnetic illumination from the illumination source onto the photosensitive substrate,

whereby the plurality of different illumination regions locally modify line width on the printed substrate.

18. A photolithography tool as in claim 17 wherein:

said optical element is a microlens array.

19. A photolithography tool as in claim 18 wherein:

the micro lens array comprises hexagonal close packed parabolic lenslets.

20. A photolithography tool as in claim 18 wherein:

the micro lens array includes conical lenslets.

21. A photolithography tool as in claim 18 wherein:

the micro lens array includes pyramidal lenslets.

22. A photolithography tool as in claim 17 wherein:

said optical element is a diffractive optical element.

23. A photolithography tool as in claim 17 wherein:

the illumination property comprises partial coherence or fill geometry.

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24. A photolithographic system for manufacturing electronic devices comprising:

illumination means for producing electromagnetic radiation; diffractive optical element means, positioned to receive the electromagnetic radiation, for providing a plurality of different illumination regions each having a predetermined partial coherence or fill geometry; and

projection optic means, positioned to receive the electromagnetic radiation passing through a reticle, for projecting an image of the reticle onto the photosensitive substrate,

whereby the exposure of the photosensitive substrate at locations corresponding to the plurality of different illumination regions is modified affecting line width.

25. A scanning photolithographic system used in projecting an image of a reticle onto a photosensitive substrate comprising:

an illumination source providing a rectangular illumination field having a longitudinal dimension, said illumination source illuminating a portion of the reticle;

projection optics having a signature introducing vertical/horizontal bias to line widths on a printed photosensitive substrate; and

a diffractive optical element positioned between said illumination source and the reticle, said diffractive optical element having a plurality of continuous zones positioned to provide illumination having a predetermined locally changing partial coherence or fill geometry along the longitudinal dimension of the rectangular illumination field used in projecting the image of the reticle onto the photosensitive substrate so as to compensate for the vertical/horizontal bias introduced by said projection optics.

26. A method of modifying printed line widths on a processed photosensitive substrate used in a photolithographic system for projecting the image of a reticle having line widths onto a photosensitive substrate comprising the steps of:

identifying spatial locations on a printed photosensitive substrate having variations in printed line widths; and

modifying an illumination property of an illumination source used to illuminate the reticle at spatial locations on the reticle corresponding to the

spatial locations identified in said step of identifying spatial locations on a printed photosensitive substrate having variations in printed line width,

whereby local modifications to line width may be made reducing local line width variations.

27. A method of modifying printed line widths on a processed photosensitive substrate used in a photolithographic system as in claim 26 wherein:

said step of modifying an illumination property comprises placing an optical element having different illumination regions between the illumination source and the reticle.

28. A method of modifying printed line widths on a processed photosensitive substrate used in a photolithographic system as in claim 26 wherein:

the illumination property is partial coherence or fill geometry.

29. A method of modifying printed line widths on a processed photosensitive substrate used in a photolithographic system as in claim 26 wherein:

the illumination property affects the printed line widths oriented in a single direction only.

30. A method of exposing a photosensitive substrate in a scanning photolithographic system comprising the steps of:

forming a rectangular illumination field having a longitudinal dimension;

identifying locations on a photosensitive substrate having horizontal/vertical bias introduced by projection optics;

determining required changes in cones of illumination in the longitudinal dimension of the rectangular illumination field needed to compensate for the horizontal/vertical bias introduced by the projection optic to accurately reproduce the image of a reticle being printed;

modifying the cones of illumination in the illumination field along the longitudinal dimension with an optical element according to the required changes; and

scanning the rectangular illumination field across the reticle,

whereby horizontal/vertical bias introduced by the projection optics is substantially corrected improving imaging performance of the photolithographic system.

31. A method of exposing a photosensitive substrate as in claim 30 wherein:

the optical element is a diffractive optical element.